

How data on vacancy is created and used: Case studies from Scotland, Denmark and Philadelphia

Dr Philip Crowe, Space Engagers

March 2019

**Commissioned by The Collaborative Working Group for Housing and
Sustainable Living**

Funded by the Housing Agency



EXECUTIVE SUMMARY	- 3 -
PROJECT OVERVIEW.....	- 5 -
Scotland.....	- 8 -
Scottish Vacant and Derelict Land Survey	- 10 -
Scottish Empty Homes Partnership	- 17 -
Denmark.....	- 23 -
Statistics Denmark	- 24 -
Danish Property Federation.....	- 29 -
Danish Local Governments.....	- 32 -
Philadelphia.....	- 35 -
Vacant Properties Indicators Model.....	- 36 -
OBSERVATIONS.....	- 43 -
APPENDIX A.....	- 49 -
REFERENCES.....	- 50 -

Executive Summary

This report records a multiple-case study of the creation and use of databases on vacancy in Scotland, Denmark and the USA (Philadelphia). Space Engagers was commissioned by the Housing Agency of Ireland (HA) to carry out the research.

In Scotland, vacancy is systematically recorded at two scales: derelict sites in any location and urban vacant sites over 1000sq.m are identified annually by the Scottish Vacant and Derelict Land Survey (SVDLS) to help the Scottish Government and Local Authorities manage remediation, planning and re-use; and vacant private sector homes are identified by the Scottish Empty Homes Partnership (SEHP) using Council Tax data and Empty Homes Officers (EHOs) who work with owners towards reuse. Both systems support a wide range of decision-making processes, advocacy and initiatives with clear social, environmental and economic benefits.

In Denmark, two systems provide nationwide statistics on vacancy: Statistics Denmark systematically identifies 'left empty dwellings' by cross-referencing a detailed population register (Danish Civil Registration System) and a property register (Central Register of Buildings and Dwellings) to create an overview in real time as a check on the effectiveness of Government policy relating to the efficient use of housing; and the Danish Property Federation (DPF) generates a dataset on vacancy for investment properties including residential on data submitted by members, helping them understand trends and patterns in the market. In addition, the situation relating to vacant publicly-owned buildings, which are not systematically recorded in Denmark, is briefly explored in the case of Denmark's second largest city, Aarhus.

In Philadelphia, USA, the Vacant Property Indicators Model (VPIM) provides indicators and rankings for the likelihood of vacancy across the city for all scales and types of property by layering multiple proxy datasets from the City Government, Revenue and utilities in a central geo-database. The VPIM acts as a flagging system that builds up a profile for each tax parcel in the city, providing a basis for a plethora of decision-making processes and initiatives. The VPIM is a critical tool for the City of Philadelphia Department of Planning and Development in supporting efficient, proactive and strategic planning operations.

The multiple-case study identifies a range of different approaches to creating and using data on vacancy. The resulting datasets are often critical for effective planning, policy-making and working towards a more efficient use of the limited resource of space. It is observed that the cases do not always

provide a comprehensive, coordinated or accessible synoptic view of vacancy in a country or city. A number of common characteristics are discussed including that the cases often use existing Government datasets; data collection is generally devolved to local government; citizens can be motivated to maintain the dataset; and local knowledge through ground-truthing and crowd-sourcing is still critical in addition to the intelligent use of technology.

Project Overview

This report documents a multiple-case study that aims to provide and communicate examples of how vacancy is identified in jurisdictions other than Ireland and demonstrate different ways in which the associated data helps to inform policies and actions, particularly in relation to housing. The research project identified and selected five relevant examples of established systems of measuring vacancy in the three jurisdictions of Scotland, Denmark and the USA (Philadelphia). An additional emerging system for publicly owned property in Denmark is also discussed. Scotland and Denmark relate to Ireland in terms of population sizes and Philadelphia relates to Dublin both in terms of population size and branding as a smart city.

The research was commissioned by the Housing Agency of Ireland (HA) as an output from the Collaborative Working Group for Housing and Sustainable Living, which includes representatives from the HA, Heritage Council of Ireland, Mayo County Council and Space Engagers. This ongoing collaboration recognises the need for a cost-effective and resource efficient system for creating and maintaining a comprehensive and reliable digital database for vacancy in Ireland that can support evidence-based fiscal and planning policy and decision making. The working group members are listed in Appendix A.

The research is intended to support Government policy, for example Rebuilding Ireland, Project Ireland 2040 and the Vacant Housing Reuse Strategy 2018. The latter includes Objective 1, Key Action 1B which refers to “developing a standardised methodology of data collection that is accurate and consistent for utilisation across the local government sector.” (Government of Ireland, 2018, 21) The research is also relevant to Recommendation 3 of the 2018 Indecon Report on the Taxation of Vacancy Residential Property, commissioned by the Department of Housing, Planning and Local Government (DHPLG), which states that “Enhanced evidence should be collected to monitor movements in the level of vacancies of residential properties.” (Indecon, 2018, 39) It is hoped that the findings will also be of interest to the Central Statistics Office (CSO), the Housing Data Analytics Group (DHPLG), the new Land Management Agency and the Vacant Homes Officers in Local Authorities.

Methodology:

A multiple-case study was chosen as the research is interested in specific examples of practices and policy-making that can actively engage readers in extending the research findings to their own or other contexts.

Following initial desktop research to identify suitable cases and baseline information, semi-structured interviews with key representatives from each vacancy inventory were carried out over the phone in June and July 2018. Interviewees were initially approached using publicly available contact details or personal contacts. The interviews were recorded in note form only. No recordings were made.

Ethics and data protection:

The research did not involve any vulnerable persons or sensitive topics. Interviewees took part willingly and were informed about the project in advance to their satisfaction. Each interviewee has been given the opportunity to review the relevant section of this report prior to final submission to the HA. The names of interviewees are only provided where consent has been given. Contact details are not provided.¹ Interviewees will be fully informed of any published material resulting from the research further to this report.

Reporting:

Distilled findings relating to three of the vacancy inventories (Scottish Empty Homes Partnership, Statistics Denmark, Vacant Property Indicators Model (Philadelphia)) were presented at the Housing Agency's Summer Seminar on 04 July 2018.²

This final report is presented in three main sections, one on each of the jurisdictions examined. Contextual information on each is provided in a table and includes available statistics on vacancy. It should be noted that no attempt is made to compare and contrast these statistics as all are based on different criteria and definitions. Each section is subdivided into the vacancy inventories identified in that jurisdiction, each of which is structured into three parts: core details; process; outcomes. A final section on observations of the multiple-case study concludes the report. Findings are summarised in Figure 6.

All information is derived from interviews unless specifically referenced.

The author and the Housing Agency of Ireland would like to sincerely thank all the interviewees for their vital contributions to this research.

¹ Where contact details are publicly available online a hyperlink is provided.

² A link to the slides presented can be found at <https://bit.ly/2InWUSd>.

Case Studies

Scotland

Scotland statistics	
Population	5,424,800 on 30 June 2017 (National Records of Scotland, 2017)
Land area	77,900sq.km (Office for National Statistics, 2012)
Housing statistics	<p>2.46 million households (National Records of Scotland, 2017)</p> <p>2,603,174 dwellings in 2017, 980,290 of which (about 38%) are flats (STATISTICS.GOV.SCOT, 2018)³</p> <p>2,567,000 dwellings; 105,000 vacant dwellings; 1,481,000 privately owned dwellings in 2016 (Scottish Government, 2016)</p> <p>Socially rented dwellings: 278,000 from Housing Associations and 317,000 from Local Authorities, New Towns and Scottish Homes (Scottish Government, 2016)⁴</p>
Vacancy statistics	<p>96% of dwellings were occupied in 2017, 3% were vacant and 1% were second homes (National Records of Scotland, 2017)</p> <p>37,135 empty homes for more than 6 months (Scottish Empty Homes Partnership, 2018)⁵</p> <p>6164 vacant Local Authority housing units in 2017 (STATISTICS.GOV.SCOT, 2018)⁶</p> <p>11,649 hectares of derelict (9574ha) and urban vacant (2075ha)⁷ sites in 2017 (Scottish Government, 2018)⁸</p>

³ Please see <https://bit.ly/2MRExpK> for different dwelling types.

⁴ Please see <https://bit.ly/2xqj39Z> for 'Stock by tenure' statistics. The figures are based on the Scottish Household Survey 2016 results.

⁵ This figure does not include second homes or properties with unoccupied exemptions for Council Tax.

⁶ Please see <https://bit.ly/2NVFamu> for a breakdown of figures. Some Local Authorities are not included, most notably Glasgow City.

⁷ This figure relates to settlements with populations of 2000 and over. An additional 331 hectares was recorded in settlements with populations under 2000.

⁸ The SVDLS Executive Summary online explains that the decrease of 844 hectares (7%) between 2016 and 2017 is the result of 857 hectares being brought back into use (514 hectares of which are former Royal Ordnance sites in

Taxes and penalties relating to property and vacancy	All dwellings are subject to a Council Tax. Council Tax discounts for vacant properties can be removed and the tax can be increased by up to 100% on a property that is vacant for over 12 months. ⁹ This is applied on a case by case basis and at the discretion of the Local Authority.
---	---

Renfrewshire), 109 hectares recorded as naturalised, the addition of 229 hectares in new sites and a net decrease of 107 hectares from changes to existing sites (Scottish Government, 2018).

⁹ These rules were introduced in 2013 to unlock 'empties' (vacant houses). The increase in Council Tax cannot be applied to second homes.

Scottish Vacant and Derelict Land Survey

Interviewees:

- Janice Blanc, Assistant Statistician, Scottish Government Centre for Housing Market Analysis.
- Alistair Harvey, Senior Planning Officer, Development Planning, Place Directorate, The City of Edinburgh Council.
- Colette Kearney, Housing and Regeneration Services, Development and Regeneration Services, Glasgow City Council.

History and motivations

The Scottish Vacant and Derelict Land Survey (SVDLS) was originally a pilot project instigated by The Scottish Government in 1988. The pilot was a response to extensive areas of vacant post-industrial land in the Clyde region, which had become a political issue. Since 1993 the survey has been carried out nationwide.

The main purpose of the survey is to provide an evidence base for monitoring:

- the extent and state of vacant and derelict land;
- the remediation of vacant and derelict land; and
- progress in bringing it back into use.

The SVDLS informs the strategic management of land-use.

Governance and resources

The Scottish Government Centre for Housing Market Analysis oversees, coordinates and manages the SVDLS. Data collection is devolved to Planning Authorities. The section assigned responsibility is at the discretion of each Planning Authority.¹⁰ For example, in Glasgow City Council the SVDLS is managed by Development and Regeneration Services and there is a dedicated unit for ownership. In Edinburgh, the survey is managed by the Services for Communities' Planning Information Team.

Co-ordination works well between the Scottish Government and Councils including through a SVDLS Working Group and annual meetings where any issues can be discussed.

¹⁰ Data is collected from the 32 local authorities and Loch Lomond and The Trossachs National Park, which has had responsibility for surveying vacant and derelict land since 2011. Sites in the national park are no longer recorded in Argyll & Bute, Perth & Kinross, Stirling and West Dunbartonshire Local Authority boundaries.

Process:

Definitions

The SVDLS identifies derelict and urban vacant sites over 0.1Ha (1000sq.m).¹¹ Sites smaller than this are not recorded as part of the SVDLS. In Glasgow, these sites may be included the Stalled Spaces scheme.¹² The SVDLS therefore does not include vacant housing units or the underuse of intermediate spaces such as floors above retail.¹³

Definitions are provided to differentiate between vacant and derelict sites:

Vacant sites: unused for the purposes for which it is held; viewed as appropriate for development; must have had prior development on it or preparatory works in anticipation of future development; located within a settlement as defined by the local authority in the latest adopted local plan. Vacant sites are only recorded within urban settlements.

Derelict sites (and buildings): land which has been so damaged by development that it is incapable of development for beneficial use without remediation; land not being used for the purpose for which it is held or a use acceptable in the local plan; land which is not being used and has a previous un-remedied use which could constrain future development (even if treatment is required only for the buildings thereon). Derelict sites can be in any location.

¹¹ Generally vacant land (suitable for development) has been surveyed only in settlements of over 2000 (Scottish Government, 2017, see pages 50-51). Not all Planning Authorities survey sites in smaller settlements. The 2017 figure of 11649 reflects data for settlements over 2000 only. Please also see footnote 7.

¹² Please see <https://www.glasgow.gov.uk/stalledspaces>. In the Stalled Spaces initiative communities, housing associations and the Council (Development and Regeneration Services unit) collaborate to co-create greening projects and natural play spaces on vacant sites. A stalled space is defined as a piece of land where development has been proposed but is delayed due to the current economic climate; an area that is unused or has no clear function; or a vacant or derelict piece of land that has been abandoned. There is no database of these spaces although existing interventions can be viewed on an interactive map at <https://bit.ly/2FK5dc0>. The sites can be crowd-sourced and communities are encouraged to come together over an idea for temporary use, approach the land owner, seek sources of funding, and get local groups and organisations involved. Guidance for legal agreements, funding, planning and design is provided. Funding opportunities listed include Planning Aid for Scotland, which runs a Planning Mentoring Scheme for communities seeking to develop assets that benefit the whole community (see www.planningaidscotland.org.uk). If the constituted group wants to buy the land, and if it is owned by a Local Authority or public agency, they can use the 'community asset transfer' mechanism run by the Development Trusts Association of Scotland.

¹³ It was noted that The City of Edinburgh Council does not regard vacant housing units as a planning problem due to the small number of vacant housing units and high demand for housing. Whilst there are some vacancies above shops in certain areas (like Prince's Street) many retail units exist in heritage buildings that were purpose built as retail with tenement flats over and with separate entrances and separate ownership. Due to this common typology, vacant space over retail is rare and not considered an issue.

Data gathering

The annual SVDLS process is an updating exercise, building on the data of the previous year. How this updating is carried out will depend on the nature and scale of the Local Authority area.

In Edinburgh, the survey is an informal process carried out largely by a technician who is very familiar with the entire city and is constantly travelling around carrying out retail surveys, development activity surveys etc., and keeping an eye out for suitable sites for the SVDLS. The technician also monitors planning applications and sends an email around the Council to see if colleagues are aware of any sites.¹⁴ Also, an advert is placed in the Council's quarterly planning news publication requesting submissions to the SVDLS. This is an external publication with 800 subscribers including community councils, interested individuals and businesses. The survey therefore relies to an extent on crowd sourced local knowledge.

In Glasgow, two members of staff from Development and Regeneration drive around with a map and ground-truth, adding and removing sites from the database. Desktop research is also used, for example consulting up-to-date aerial imagery, colleagues in the Housing and Regeneration unit, and those who work out in the field and know their local area very well.

The Scottish Government Centre for Housing Market Analysis consolidates data from the different local authorities, who each fill in an excel template with two spreadsheets: one for recording vacant and derelict land, and another recording land taken out of the survey as it no longer meets the criteria. A verification process is integrated into the spreadsheet.¹⁵ In many local authorities each site is mapped digitally using GIS shape files and categorised.¹⁶

The Scottish Government requests the data from the end of September and the report is normally produced in April.

¹⁴ This email often results in identification of sites below the 1000sq.m threshold. These are recorded informally.

¹⁵ For example, the spreadsheet will identify if there were something contradictory, perhaps between definitions, coding and numbers.

¹⁶ Around 75% of Councils submitted data in GIS format in 2017 and this is expected to rise.

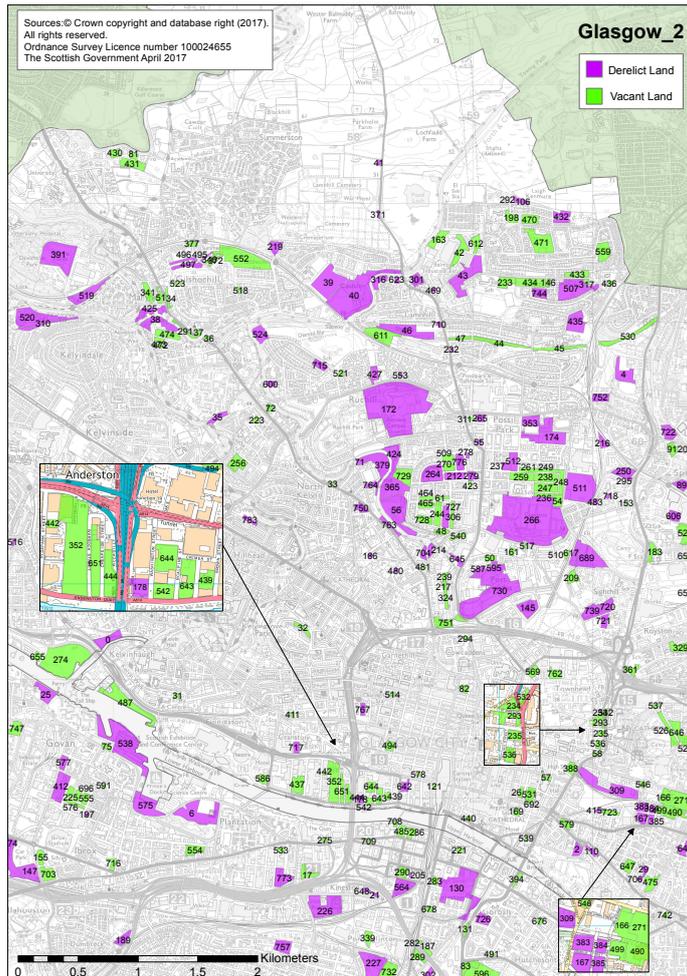


Figure 1. Map Glasgow_2. (from the SVDLS 2017) (Scottish Government, 2018a)

Data outputs

The data is collated into a site register and inputted into a GIS system specifically used for quality assurance, analysis and publication of the SVLDS.

The outputs include:

- thematic maps available online in pdf format;¹⁷
- statistics relating to proportions and proximities etc.; and
- a report covering all local authorities.

The report is an objective statistical document that does not speculate or interpret the data.

¹⁷ Please see <https://www.gov.scot/Topics/Statistics/Browse/Planning/Publications/SVDLSmaps>.

Challenges

- While all local authorities are requested to supply their data in an excel template, different systems have been used historically and so some data cleaning and quality assurance is carried out.
- Not every local authority carries out the SVDLS every year (two did not update in 2017), so there will be some discrepancies. The Scottish Government has no way of forcing the local authorities to provide the data.
- The allocation of definitions can be subjective. Issues are identified and reviewed with policy makers each year by the SVDLS Working Group. The Guidelines are continually reviewed and updated where required.
- Some sites that might be considered suitable for inclusion fall outside the definitions, for example where a site can be shown to never have actually been previously developed.¹⁸
- Finding owners can be challenging. There are often multiple owners. Local authorities cannot carry out remedial works funded by the VDLS fund if they do not have cooperation from owners.
- The Vacant and Derelict Land Fund only applies to sites over 1000sq.m that have been on the register for 15 years or more. This is considered by Glasgow City Council to be problematic when heritage buildings fall into disrepair and there is a need to make safe and preserve integrity.¹⁹ Glasgow City Council is keen the 15-year restriction would be relaxed.

Outcomes:

In Edinburgh, the GIS layer of the SVDLS is used alongside other datasets to develop the local development plan and urban capacity study. The main focus is allocating brownfield sites for housing in the context of housing needs and demand assessments. Edinburgh is a compact and densely used

¹⁸ Technically these sites don't count, even though some are in urban areas. An example given in Edinburgh (in 2014) was a large overgrown space outside the Corn Exchange. The space had always been there (it was originally used for cattle grazing) and doesn't count as it was never actually 'developed' (personal correspondence with Simon Antrobus, The City of Edinburgh Council, in 2014).

¹⁹ As this can be expensive work it is possible to combine with other funding sources, for example from Historic Scotland.

city and it is challenging to find sufficient land for housing. The dataset is also used by developers and community groups.²⁰

In Glasgow, the SVDLS indicates a year on year reduction in sites of 3%. Maps are combined with address data to find the number of houses within a certain distance of a vacant or derelict site, and with the Scottish Index of Multiple Deprivation to assess deprivation within a certain distance.²¹ This can help to understand any relationship between deprivation and vacancy and to identify potential for a site to address/support areas of need.

The SVDLS data is used for numerous purposes as set out in a document from the Community Analytical Services (2014):

- Understanding the extent and state of urban vacant and derelict land, and the amount that has been reclaimed on an annual basis;²²
- Providing a national data source to inform the programming of rehabilitation, planning and reuse of urban vacant and derelict sites;
- Allocating and monitoring the impact of the Vacant and Derelict Land Fund (VDLF).²³ The mapping provides an evidence base for this fund, which provides support for physical development such as land remediation, enabling infrastructure, and support for town centres;
- Informing statutory documents, for example providing evidence to support Local Development Plans (10-year horizon), Regional Strategic Development Plan (20-year horizon), Local Housing Strategies and Strategic Housing Investment Plans. The SVDLS informs the identification of land for the housing component of development plans;
- Managing Land Remediation relief at the UK Government scale, providing incentives for the remediation of brownfield sites;
- Supporting urban regeneration companies in identifying sites for regeneration;
- Providing evidence that feeds into the discussion on potential income generated from vacant and derelict land becoming subject to non-domestic rates;

²⁰ An example was given of a community group called 'Greener Leith' using the data to highlight sites that had been vacant for many years and to query whether the group might be allowed to initiate projects on the sites (personal correspondence with Simon Antrobus, The City of Edinburgh Council, in 2014).

²¹ For example in 2017, 13% of all derelict and urban vacant land recorded in Scotland was situated within the 15% most deprived data zones (Scottish Government, 2017).

²² It was noted that The City of Edinburgh Council finds the survey helpful as it clarifies an area that was previously based only on assumptions (Personal correspondence with Simon Antrobus, The City of Edinburgh Council, in 2014).

²³ The Vacant and Derelict Land Fund is one of 3 elements of the Capital Investment Fund.

- Contributing to annual reporting of the Environmental Industries Commission (UK);
- Providing evidence that helps respond to queries from elected members and Local Authority managers, the media and other stakeholders.
- Providing a Performance Indicator within the 'Sustainable Communities' theme of the Housing and Regeneration Outcomes Framework.²⁴

²⁴ Please see <http://www.scotland.gov.uk/Topics/Built-Environment/Housing/reform/HARO>. The Housing and Regeneration Outcomes Framework includes 'Amount of vacant and derelict land' as a Performance Indicator for 'Physically sustainable communities' under 'Sustainable communities'.

Scottish Empty Homes Partnership

Interviewee:

- Shaheena Din,²⁵ CEO Scottish Empty Homes Partnership

History and motivations

A baseline report on the Private Rented Sector in Scotland from 2009-10 revealed that Councils were not collecting data on empty dwellings and that there was a need to support councils who wished to pursue empty homes work. The Scottish Empty Homes Partnership (SEHP) was established as a result of that recommendation by an individual, Kristen Hubert, and began its work in June 2010.

The SEHP exists to help bring private sector empty homes back into use. In the past 8 years, the SEHP has helped bring more than 2800 empty properties back into use and recently had its funding and workforce doubled.²⁶

Governance and resources

The SEHP is run by Shelter Scotland, a homelessness charity, and funded by the Scottish Government. The work of the SEHP is supported by 2 key legislative changes:

- The Housing (Scotland) Act 2010. Enacted in October 2011, this legislation allowed local authorities to use Council Tax records to identify vacant properties and bring them back into use.
- The Local Government Finance (Unoccupied Properties etc.) (Scotland) Act 2012. Passed in December 2012, this legislation gave local authorities the power to vary the amount of Council Tax levied against empty properties, and if applicable implement a surcharge of up to 100% as a lever to bring empty homes back into use.

The SEHP has Empty Homes Officers (EHOs) in most Councils²⁷ who, since 2015, are supported by the Empty Homes Advice Service (EHAS), comprising of an Empty Homes Advisor (since 2013/14) and a Knowledge Hub for sharing best practice, ideas, information on loans and grants, support and

²⁵ Contact details available online at https://scotland.shelter.org.uk/empty_homes.

²⁶ Please see STV.tv interview at <https://bit.ly/2NxrWwZ>.

²⁷ In 2017-18, 20 out of 32 Councils had Empty Homes Officers (Scottish Empty Homes Partnership, 2018). The SEHP website notes the need for these to be permanent long term posts to attract good staff and ensure continuity.

feedback. There is an SEHP Advisory Group, an annual conference, and the Scottish Empty Homes Champion of the Year Award.

Process:

Definitions

The SEHP database records privately owned housing units that have been empty for over 6 months.

Data gathering

In Scotland, every privately-owned housing unit is subject to the Council Tax that is invoiced every April and paid over a 10-month period. The tax data indicates whether a property is occupied or not as it is in the interest of an occupant (owner-occupier or tenant) to inform the Council if they move out to avoid paying unnecessary taxes.²⁸ The only exception might be when an elderly person has gone into care and continues to pay Council Tax. If the tax is unpaid then the Council will actively try to find out why. One possible outcome is that the property is vacant. A house may also prove to be uninhabitable or derelict, in which case it is designated a “low tolerance standard” and notices can be sent to the Environmental Health unit.²⁹ The Council Tax is therefore, in effect, a flagging system for vacancy.

Before 2013, a property owner received a Council Tax discount if there was no one living in the house. The rules changed in 2013 and now the tax can be increased if vacant. The purpose of this change was to try and unlock ‘empties’ (empty properties) and get them back into use. However, there are exemptions from the increase if the property owner can show that the property is empty temporarily for renovations etc..³⁰

The Government data from Council Tax is only a baseline that EHOs refine and detail with their own survey work to produce better quality data. The

²⁸ Liability for Council Tax transfers from tenant to landlord once a tenant moves out, providing an indication of occupancy.

²⁹ These derelict properties are also identified from crowd-sourcing, for example when neighbours ring up to report leaks due to shared rainwater goods etc..

³⁰ Please refer to guidance (updated in April 2018) at <https://beta.gov.scot/publications/council-tax-on-second-and-long-term-unoccupied-homes-guidance/>. The following circumstances might merit flexibility in terms of not charging the Council Tax increase where the property has been empty for over a year: the owner is finishing renovations prior to moving in/selling/letting and can demonstrate that these works are progressing; a long-term second home where the owner was unable to meet a 25 day occupancy criteria in the previous 12 months due to personal circumstances but where a history of 25 day occupancy can be shown in previous years; a property that is taking a long time to sell/let in a stagnant market despite being priced appropriately; any other circumstances where the owner has agreed with an Empty Homes Officer to take positive steps to re-occupy their property and it is in the view of the Empty Homes Officer that a time-limited Council Tax increase “holiday” would encourage the property to be brought back into use sooner.

EHO engages with the local Council Tax department and obtains the list of 6-months empty properties. Once the 6-month flag is raised the EHO starts a data cleansing exercise and may go out and start investigating, sending letters in the first instance. EHOs carry out publicity drives to try to get to owners and raise awareness through the media. The EHO approach is to support the owner.

EHOs also crowd-source data through the Empty Homes Advice Service.

Data outputs

Statistics from the SEHP data are published in annual reports.

Challenges

- There is a lack of consistency in how the different Councils manage Council Tax. For example, the quality of the data varies and not all have charged the increased tax on empty homes.
- Identifying the length of time a dwelling has been vacant can often depend on anecdotal evidence.
- There is no incentive for Councils to identify empty properties or produce quality data.
- There is still a challenge persuading Councils to employ a full-time EHO and realise the import of this work. This is despite the fact the SEHP can show that an EHO will become cost neutral after between 1 and 2 years, and thereafter will often generate revenue for the Council. The SEHP can also help a Council fund an Empty Homes Officer for an initial period through the Empty Homes Shared Services Incubator Projects (2 years) or the Kickstarter fund.

Outcomes:

Following their data collection process (from Council Tax, their own research and crowd-sourcing), EHOs prioritise which empty homes to expend resources on to meet Council goals. For example, the EHO will not focus on properties that are evidently part of a strategic plan for regeneration or redevelopment, or if the owner or tenant has gone into a care home. The EHOs provide advice and information to owners, providing signposting on how to refurbish, rent or sell. EHOs are involved in pro-active engagement with owners to encourage them to bring their property back into use and can offer a range of incentives using council schemes such as Private Sector Leasing (PSL), rent deposit guarantee, empty homes loans, or grants. When all else fails and the property is still presenting an issue for the community,

the Council can use enforcement to encourage or force an empty home owner to bring their property back into use.

The empty homes database provides a starting point for a number of initiatives that encourage or force empty homes back into use:

- VAT reductions on renovations that vary depending on the length of time the home has been vacant;³¹
- Empty Homes Loan Fund for owners who are struggling financially;³²
- Compulsory purchase orders (CPOs);³³
- A Town Centre Empty Homes Project for any vacant building that can be brought back into use as housing;³⁴
- Varying Council Tax rates;³⁵
- Cooperation with Housing Associations and Councils;³⁶
- A matchmaker scheme in Glasgow for owners of empty homes and potential buyers;³⁷
- A Local Project Service (LPS) for local multi-unit empty homes projects available to all types of organisation.³⁸

³¹ VAT is reduced to 5% if a property can be shown to have been empty for 2+ years, and 0% for 10+ years.

³² This was available in 2012. Councils bid for the funds which were to be used to bring 'empties' back into use as affordable housing. The fund was based on the premise that if an owner was struggling they could tap into the Council's loan fund. However, this is not how it worked out in practice and there was a poor take up.

³³ CPOs are not used widely even though the Scottish Government is promoting greater use. The SEHP is promoting, with support of the Scottish Government and Land Commission, an alternative mechanism in the forthcoming Land Reform Bill: a Compulsory Sale Order (CSO).

³⁴ A pilot in 2015 made £4 million available and resulted in 87 additional affordable homes. Funding was also made available from the Scottish Towns Partnership and Scottish Heritage. Please see <https://bit.ly/2loTOZu> and <https://bit.ly/2R9jHW2>. Vacant non-domestic buildings are evident through the non-domestic rates system. The SEHP is now recommending a new Town Centre Empty Homes Project, along similar lines to the Rural Housing and Island Fund (90% grant, 10% loan), building on the success of the pilot.

³⁵ As previously noted, Councils can apply increased Council Tax on empty properties not subject to any exemption categories. This can be up to 100% after 12 months. This is not intended as a revenue raising initiative. Please also see footnote 30.

³⁶ The Glasgow Shared Services Project (a 2-year pilot 2015-17), a tripartite project between Glasgow City Council, Glasgow Housing Association (GHA) (a Registered Social Landlord) and Shelter Scotland, initially focussed on 4 priority areas for targeted acquisition of empty properties and increasing the supply of affordable housing.

³⁷ The scheme matches owners of empty properties in the private sector with potential purchasers to assist in bringing empty properties back into use in four areas where problems have been identified in private sector housing (Glasgow City Council, 2016). To further promote the scheme, links have been made with the Mortgage Guarantee Scheme which seeks to promote opportunities for first time buyers (ibid.).

³⁸ The support available includes help to identify one-off multi-unit projects; sourcing and securing funding; building cooperation with stakeholders; project management assistance. There is no restriction on the type of empty property that can be brought back into use, as long as the end use is residential. Some of the properties being looked at for renovation include a former primary school, an old pub, a former care home and a farmhouse. The LPS is also working directly with charities to realise community-led solutions to housing shortages. The buildings are often crowd-sourced (Scottish Empty Homes Partnership, 2017).

Impacts

- With cleaner data from the work of EHOs in over half of the Councils the baseline number of empty homes has increased (Scottish Empty Homes Partnership, 2017).
- The SEHP helps Councils develop an Empty Homes Strategy. In 2016, 23 councils included a specific numeric or percentage target for empty homes brought back into use (up from 15 in 2015) in their Local Housing Strategy. A further three had a less specific target to “reduce” or “decrease” the number of empty homes (Scottish Empty Homes Partnership, 2017). 11 councils indicated they had a specific Empty Homes Strategy or Action Plan in place (ibid.).
- The SEHP is making the case for the role of empty homes in meeting the outcomes highlighted by Councils in their Local Housing Strategies, such as:
 - increasing the supply of affordable housing;
 - developing mechanisms to improve choice and access to affordable housing across all tenures;
 - stimulating demand in areas that are less popular or have investment needs;
 - promoting a mix of housing tenures and types to meet the needs of all communities.

The SEHP want to see more Councils realise the beneficial impacts of making the re-use of empty homes a strategic priority that can provide increased Council Tax revenue and spending in the community. In an online article from June 2017, Adam Lang, Head of Communications and Policy at Shelter Scotland, states that “The return on investment in empty homes is a powerful reason for local authorities to explore ways of extending their empty homes work.” (Shelter Scotland, 2017)

- The SEHP notes positive impacts relating to Community Regeneration and Town Centre Renewal, sustaining rural communities, restoring confidence in local property markets, discouraging anti-social behaviour, climate change and sustainability. Benefits for communities and local authorities can be shown by the Empty Homes Value Tool.³⁹
- The SEHP carries out policy-related work in terms of research and advocacy, for example identifying barriers to re-use; supporting legislative changes to Council Tax law that allows access to data on empty homes; recommendations on financial incentives for re-use; advocating for greater diversification and funding of financial incentive

³⁹ Please refer to <https://bit.ly/2zyIN9W>.

schemes offered by the Scottish Government and Local Authorities to include more types of empty homes and for more types of end uses. The SEHP is also lobbying for Compulsory Sales Orders (CSOs), where there is no need to guess a value, but a need to prove:

- the empty home has a negative impact on the community (discussions have taken place on how this is assessed and classed),
- that the CSO is in public interest,
- it is aligned with the housing strategy, and
- attempts to engage have been exhaustive.⁴⁰

There is a consultation out on CSOs at the time of writing.

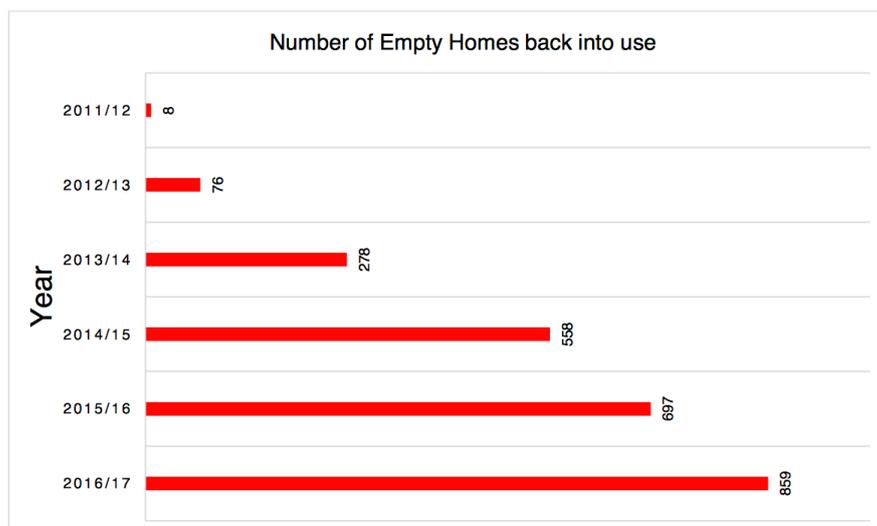


Figure 2. "Number of Empty Homes back into use" from the SEHP Annual Report 2016-17 (Scottish Empty Homes Partnership, 2017).

⁴⁰ The CSO proposal is a response to the finding (from the work of the EHO's) that there is a clear need for a new solution to 'unstick' extreme or 'no hope' cases and that there is a low-level use of Compulsory Purchase Orders. CSOs were proposed by the Land Reform Review group (please see <https://www.gov.scot/Publications/2014/05/2852>). and are supported by Shelter Scotland, Scotland's Towns Partnership, Rural Housing Scotland and the SEHP.

Denmark

Denmark statistics	
Population	5,781,190 on 01 January 2018 (Statistics Denmark, 2018)
Land area	42,934sq.km (Statistics Denmark, 2018)
Housing statistics	2,815,000 dwellings in 2017; 48% of dwellings are mortgaged (EU average is 27%); 52.6% of the population live in an owner-occupied dwelling (EU average 70%) (Statistics Denmark, 2018)
Vacancy statistics	152,000 unoccupied dwellings in 2017 (Statistics Denmark, 2018). Denmark has total 4.2% 'economic vacancy' ⁴¹ for residential, 10% for office, 6.1% for retail, 10.3% for industry and 8.1% for other commercial. Copenhagen Centre has 4.7% 'economic vacancy' for residential (Danish Property Federation, 2018).
Taxes and penalties relating to property and vacancy	<p>2 taxes apply to owner-occupied residential property: a land value tax to the local municipality (1.6-3.4% of land value); and a property value tax to the State.⁴²</p> <p>Residence requirement: home owners have a duty to ensure their property is inhabited for at least 180 days a year.⁴³ It is a criminal offence under the Housing Control law for owners not to inform the Kommune if a property is vacant for longer than 180 days. A fine can be applied. If the residency requirements aren't being respected the municipality will assign a tenant to the property or ultimately force the owner to rent the property.⁴⁴</p>

⁴¹ The base of the economic vacancy is the actual annual rent. The economic vacancy is defined as the sum of annual rent in all vacant rentals divided by the sum of actual annual rent in both occupied and vacant rentals (Danish Property Federation 2018).

⁴² Please see Ministry of Taxes website at <http://www.skm.dk/english>

⁴³ The residence requirement was implemented to avoid depopulation of rural districts, to counteract formation of holiday home enclaves in areas of housing need, and to prevent unimpeded speculations in the property market (Legal Desk, Bopælspligt, at <http://bit.ly/2vVgLDW>).

⁴⁴ This residence requirement is regulated by the Housing Control Act, Chapter 7. While the 180-day requirement is not mentioned in law it is upheld by the Ministry of Taxes liability rules. Please see <https://boligejer.dk/bopaelspligt>. There are exemptions for recognised holiday homes, properties that are up for sale/rent, and in areas of low demand.

Statistics Denmark

Interviewee:

- Annika Klintefelt,⁴⁵ Statistics Denmark

History and motivations

Statistics Denmark is the State statistics agency under the Ministry for Economic Affairs and the Interior. Statistics Denmark is tasked with ensuring the efficient management of the State in terms of citizens, property, benefits, services etc.. The work of the agency includes collecting data on how all property is used, as reported by the users. Statistics Denmark has been collecting data on the population since the 1960s and on property (dwellings) since 1981.

Governance and resources

Statistics Denmark works closely with the State, Kommunes (Local Authorities) and citizens. It is State funded but also charges for specific data requests. Kommunes have a key role in devolved data collection that is brought together centrally by Statistics Denmark.

Statistics Denmark only publishes statistics, not individual cases. No personal data is published⁴⁶ but this is available through other online sources.⁴⁷

Statistics are collected for the entire country.

Process:

Definitions

Data is collected on 'left empty dwellings' of different types: detached houses/farmhouses, terraced, linked or semi-detached houses, multi-dwelling houses, all of 1 to 7 or more rooms. The period of time that a property has been unoccupied for is also recorded and provided as a category.

The definition for 'left empty' is simply that a property is not in use at that particular moment in time.

⁴⁵ Contact details are provided on <https://www.dst.dk/en/Statistik/emner/leveilkaar/boligforhold/boliger>

⁴⁶ Personal identification numbers (PINs) are scrambled and the code is known to only a few people. Personal data is therefore not available within Statistics Denmark.

⁴⁷ Please see <http://www.tinglysningretten.dk> (core data for a specific property including who owns the property, property/land value, plot identifier, and mortgage details), <https://sdfekort.dk> (Danish Geodata Agency where a map will identify the plot number and outline an area), www.ois.dk (a public information server operated by the Danish Customs and Tax Administration, SKAT (SKAT (N.D.), 2018), which gathers property data from all registration systems and includes maps, plot information, a property conditions report etc.).

Data gathering

The statistics on how a property is used come from 2 registers with devolved responsibility to local authorities who constantly feed data to Statistics Denmark:

1. The Danish Civil Registration System (CPR) (population register)⁴⁸ on which every person is identified and their address recorded with a geocode and property identifier. The CPR is managed by the Ministry for Economic Affairs and the Interior. Every time a tenant or owner/occupier moves they notify the Kommune. There are clear and strong motivations to do this as an up-to-date record on this register dictates where mail is delivered, access to healthcare, child allowance, access to schools etc.. Homeless persons register an address provided by the Kommune.
2. The Central Register of Buildings and Dwellings (BBR) (property register) that is linked to building permits for planning, exemptions, licenses, demolition etc.. The BBR is managed by the Ministry of Housing, Urban and Rural Affairs. The register includes all types of building including petrol stations, greenhouses etc..⁴⁹ The property register details who owns a building, who rents the building, and details of that building (such as construction and finances).⁵⁰ Each unit within a building and what it is used for is registered, so a mixed-use retail and residential building will have each unit marked out and dimensions provided. The BBR includes publicly owned buildings such as social housing.

The identification of 'left empty dwellings' therefore results from a digital and coordinated system collating data from all Kommunes in the 2 registers, one recording information on a person including an address, the other recording information on a property including occupancy and ownership. There are no problems with consistency between datasets from the Kommunes although which department collects the data can differ. In Copenhagen, the planning department collects the data.

⁴⁸ The register records every person's civil registration number, name, geo-located address, birth registration, citizenship, church membership, parentage, marital status (School of Business and Social Sciences Aarhus University, 2018b).

⁴⁹ It is acknowledged that data quality goes down with more peripheral buildings/structures.

⁵⁰ The register records each individual building and building unit's identification, location, purpose, year of construction, technical conditions, layout and electric installations, ownership, tenancy, permits, licences, planning history. The register aims to establish baseline data about building and housing conditions for the use of property assessment, population and housing censuses, and statistical purposes (School of Business and Social Sciences Aarhus University, 2018a).

It is in the interest of a person residing in Denmark to keep all data relevant to themselves and the properties they own or rent up to date on the registers. The data is therefore self-sustaining and dynamic.

Data outputs

While publicly available data is only updated on 01 January each year, it is actually updated more or less in real time and available quarterly to government or at any time on payment of a fee.⁵¹ It is therefore possible to interrogate more or less live data.

A user of the Statistics Denmark website can filter the data in terms of location, typology, number of rooms and period of occupancy, and create maps, charts and tables. Areas of building floor plates are inputted using shape files (polygons). Files can be downloaded in various formats⁵² from <https://www.statbank.dk/FLYBOL>

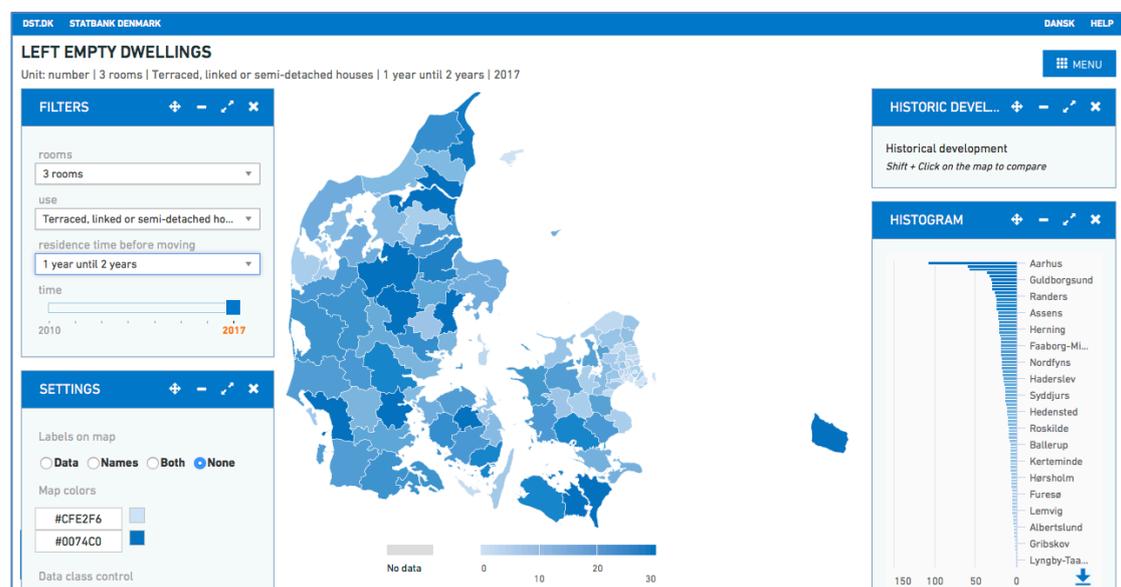


Figure 3. Screenshot from FLYBOL on <http://www.statbank.dk/>

⁵¹ Population data is updated every evening. Property data is updated less frequently.

⁵² Formats include excel, Dbase etc..

Challenges

Challenges identified include:

- Getting politicians on board. Some politicians consider there to be an 'integrity' issue, where the state might know too much about people and property.
- Changes in categories and definitions can make longitudinal studies difficult. For example, cottages were recently added as a category and there have been some breaks in data over time.
- Resources (time and people) in setting up the system are significant. For example, a similar system exists in all Nordic countries and the Swedish system (based on the Danish system) took about 10 years to set up.
- Keeping up to speed with technology in terms of maintenance and updates. Statistics Denmark has a dedicated IT team.
- The system is not fool-proof. For example, there are some gaps such as addresses that may not be registered or unofficial holiday homes.⁵³ The data can also be skewed by two challenges facing the efficient use of property in Denmark:
 - the use of properties for Airbnb; and
 - newly constructed housing developments that can be left unoccupied until the developer secures a buyer.⁵⁴

Outcomes:

The Danish Government uses the data to ensure the efficient management of the State and to monitor the effectiveness of policy as it impacts on citizens, property, benefits, services etc..

The statistics indicate that rural locations have the highest levels of vacancy. Denmark operates a Village Renewal scheme that manages and funds demolition or refurbishment of vacant dwellings in rural locations. Statistics Denmark data is used to understand numbers of vacant properties but does not identify specific properties (Jensen, 2017). Systematic mapping of vacant and derelict buildings rarely takes place and most Kommunes use a variety of methods including the register-based mapping, visual inspections, feedback

⁵³ If a property has no CPR number it is registered as empty (Committee on Rural Areas and Islands, 2012).

⁵⁴ For example, the Statistics Denmark figures for left empty dwellings are very high for Aarhus, perhaps reflecting the large numbers of new high-rise apartment developments in the city that are left unoccupied for a period after construction completion.

and suggestions from local communities and organisations, requests from building owners and reports from social welfare workers (Jensen, 2017).

Impacts

The data allows Government to assess how the current rules for enforcement of the residence requirement are performing. A report from the Ministry of Transport, Building and Housing (2017) illustrates an example, quoting a figure of 2591 empty dwellings in Copenhagen in January 2017 (where “no CPR address has been registered”). 1189 of these homes were technically recognised as full-year residences, of which 72% were newly constructed homes that were expected to be occupied in a short period, leaving 333 longer term vacant homes in the city (Ministry of Transport, Building and Housing, 2017). The report notes that this is a very low number of homes and that any proposed legislative changes must be carefully considered, such as making newly built housing developments subject to the Housing Control Act (residence requirement).

Danish Property Federation

Interviewee:

- Trine Ejsing,⁵⁵ Danish Property Federation

History and motivations

The Danish Property Federation (DPF) is the trade association of the Danish property industry and represents property owners, investors and property managers in the residential and commercial property investment sector including property insurance companies, management companies, banks, pension funds etc.. The DPF was founded in 1860 and started publishing quarterly reports entitled "Market Statistics – Vacancy" in July 2015.⁵⁶

The general motivation for gathering data on property is to help DPF members understand the market, identify and investigate trends, and access quality data including vacancy rates, rent levels and total returns. The data is of benefit to the members, for example in terms of providing a reliable and up-to-date evidence-base for valuations. If valuations asserted by Government are not correct, property owners can end up paying too much tax and spend up to 8 years in court trying to query the valuation.

A nationwide valuation of residential property is to take place in 2019, and of commercial property in 2020. DPF is contributing to the latter.

Governance and resources

The DPF is funded by its members and covers the entire country. There are areas where data is scarce, but at the regional level it is considered sufficiently comprehensive to be representative. DPF is targeting these areas and there are increasing numbers of companies getting involved all the time.⁵⁷

Process:

Definitions

The DPF collects data on commercial and residential investment properties including identification of vacancy. For each of the four surveys per year a form is filled out to represent the situation on the day assigned for the

⁵⁵ Contact details for Morten Marott Larsen, Director in DPF, are provided in the July 2018 report. Use of these contact details resulted in correspondence with Trine Ejsing.

⁵⁶ These reports are available online at <https://ejendomsforeningen.dk/english/market-statistics/the-danish-property-federation-vacancy>. Previously, data on vacancy was collated by MSCI Denmark.

⁵⁷ Please refer to the "About the Market Statistics" section of the latest report available online for the number of portfolios and properties that contribute to the data. For the April 2018 report, portfolios with approximately 83,900 rentals contributed to the statistics (Danish Property Federation, 2018).

survey. Therefore, the definition of vacant is simply that the building is not occupied or in use on that day. There is no time requirement for achieving the status of vacant.

Properties under renovation and construction are excluded from the statistics. Furthermore, a new or renovated building will only be included in the statistics if at least 75% is in use or it has been possible to move in for more than six months (since completion of works).

Table 4. Residential	Economic vacancy rate		
	July 2018 (percent)	Quarterly change (percentage points)	Annual change (percentage points)
Capital Region	3.7	0.0	0.3
Copenhagen Centre	4.7	-1.4	-1.6
Other Copenhagen Municipal	4.6	0.2	0.2
Northern Zealand	2.4	0.5	0.6
Other Capital	2.4	-0.1	0.8
Zealand Region	2.5	-0.2	0.4
Eastern Zealand	1.3	0.4	0.8
Western and Southern Zealand	3.1	-0.6	0.0
Southern Denmark Region	2.4	-0.7	0.7
Odense	1.5	-1.8	-0.3
Triangle Area	5.2	1.6	3.1
Other Southern Jutland	2.3	-0.2	1.1
Mid Jutland Region	5.6	0.5	1.5
Aarhus	6.4	0.6	2.0
Other Mid Jutland	3.4	0.5	0.3
Northern Jutland Region	8.5	1.7	3.6
Aalborg	8.4	1.7	3.6
Other Northern Jutland	10.0	1.8	1.7
Total	4.2	0.1	0.8

Figure 4. Table 4. Residential, The Danish Property Federation Market Statistics – Vacancy, July 2018 (Danish Property Federation, 2018). Download the report [here](#).

Data gathering

The data is provided by the members with the understanding that if they provide data they receive the benefit of better data that reveals the bigger picture. A list of the members who supply the data for the survey is provided in the reports.

Until very recently the data gathering process was very resource intensive with members contributing by email. However, recently a new web portal has been used that makes the process much easier. Data can be submitted in excel spreadsheets. Smaller property owners can type data in manually.

Data outputs

The DPF does not identify individual property owners due to data protection. The findings are communicated to members as averages for an area. Accuracy and utility of the averages will depend on how comprehensive the data received for that area is. The public facing reports provide a summary and overall statistics only.

Members see a value in an independent organisation collecting this data. The raw data is not available to Government.

Outcomes:

The DPF members use the data to understand the market and to inform investment decisions. The data allows members to better understand the relative levels of vacancy and the property dynamics of a specific area.

The data provides a basis for making a case for change in lobbying and advocacy work. For example, the data can be used to support the case against rent regulation on residential properties.

Danish Local Governments

Contacts:⁵⁸

- Christian Juul Wendell,⁵⁹ Chief Community Officer, Institut for X (Aarhus)
- Finn Nathan, Senior Consultant, Department for Technology, Environment and Properties, Aarhus Kommune

History and motivations

In Aarhus, the second largest city in Denmark, there is no centralised register of publicly owned buildings. Work on a register was started in 2017 by Aarhus Kommune in collaboration with Institut for X, a social enterprise, but it is still only at an early stage.

The origins of the register lie in the temporary re-use of administration buildings. After rationalisation of administration functions into just 3 buildings in the city, a number of publicly owned buildings were left vacant. A prototype project saw the reuse of the old social administration building by 50 start-up companies over 2 years. This initiative was co-ordinated by an enterprise called CultureWorks and grew to 110 companies over 3 additional locations.⁶⁰ The Kommune is also working on some temporary reuse projects for cultural purposes, for example in the old tax building.

A principal motivation for creating a register of publicly owned buildings is therefore to enable social and cultural enterprises to use vacant properties on a temporary and low-cost basis. This is evident in the Cultural Policy for the city, which is influenced directly by the Mayor's Office:

A culture-producing city requires physical frameworks where art is produced and displayed, and spaces where the different genres meet and inspire each other in a social community. Improved utilization of space in empty public buildings and a greater degree of self-organization in the use of existing facilities can help to alleviate the need for art production facilities.

(Culture and Citizenship, 2017, 16)⁶¹

⁵⁸ No interviews were secured for the Local Government registers of vacant publicly-owned properties.

⁵⁹ Personal contact from a previous Space Engagers citizen engagement project in Aarhus as part of the EU H2020 OrganiCity project.

⁶⁰ CultureWorks have since moved into temporary privately owned buildings. Christian Juul Wendell noted that this was because contract negotiations with the Kommune were too rigid.

⁶¹ Google translation.

Governance and resources

A cross-departmental group, including the Mayor's department, has now been set up to prepare a common procedure for identifying and registering vacant publicly owned properties. The group is headed up by the Department for Technology, Environment and Properties.

Aarhus Kommune covers 21 districts and includes satellite towns and conurbations around the city of Aarhus.

In addition, a formal cooperation has been established with key people related to all aspects of building administration in the Kommunes of Copenhagen, Aalborg, Odense, Esbjerg and Randers. However, this cooperative group has not yet addressed the issue of vacancy.

Process:

Definitions and data gathering

No information was forthcoming on definitions or on how the data will be gathered.

Challenges

- It is not clear to what extent Aarhus Kommune wants to share the status of publicly owned buildings in open data.
- The register will add to the Kommune's workload.
- The public sector may be challenged by citizens as to how they are managing their building stock.⁶²
- Concerns in the Kommune that reuse at below market value will distort the market is limiting take-up of temporary contracts.

Outcomes:

Christian Juul Wendell predicts that quality and comprehensive data on publicly owned property and better communication on the terms of contracts for temporary use will help counteract fears that letting out at below market values for cultural uses distorts the market. This can in turn help inspire private property owners to understand the (often very basic) conditions agreed to in these agreements and how cultural projects can benefit their property investments and the quality of life and prosperity of the city.

⁶² Christian Juul Wendell noted that a lot of property is being sold off to investors in "quick fix sales" for profit-maximised housing projects by private developers.

Impacts

In Aarhus, the establishment of a register of vacant publicly owned buildings is seen as part of a wider discourse on the cultural, social and economic value of a strong cultural and entrepreneurial community, establishing an identity for the city internationally.

Christian Juul Wendell suggests that a systematic overview of publicly owned vacant properties would support and prompt the allocation of resources (funding, facilitators and mediators) to manage temporary reuse projects within a strategic framework under both the Cultural Policy and “Planstrategi” (higher level planning legislation) of a Kommune.

Philadelphia

Philadelphia statistics	
Population	1,580,863 (US Census Bureau, online) ⁶³
Land area	347.32 sq.km (US Census Bureau, online)
Housing statistics	685,900 housing units; 52.4% owner-occupied housing unit rate in 2016; 582,594 households in 2016 (US Census Bureau, online)
Vacancy statistics for residential	40430 housing lots with no known use (Garden Justice Legal Initiative, 2018) Vacancy rate for housing 13.3% (World Population Review, 2018)
Relevant taxes, penalties and strategies relating to property and vacancy	Vacant property licenses (applied for voluntarily) ⁶⁴ Vacant Property Strategy since 2011 ⁶⁵

⁶³ Population estimates, July 1, 2017 (V2017), United States Census Bureau (2018). Please see <https://bit.ly/2zyV65Z>.

⁶⁴ A penalty applies if a license is not obtained for a vacant property. The penalty accrues over time.

⁶⁵ A new Vacant Property Strategy is being developed by the Department for Planning and Development for late 2018.

Vacant Properties Indicators Model (VPIM)

Interviewees:

- Anne Fadullon, Director of Planning and Development, City of Philadelphia.⁶⁶
- Abigail Poses, GIS Specialist at City of Philadelphia, Planning Commission.

History and motivations

The Vacant Properties Indicators Model (VPIM) is a bespoke vacancy analytical model that brings together data on land and buildings from many City of Philadelphia departments and utilities. The model emerged out of many years' work in the area of property and vacancy, including the creation of a system of unique property identifiers; an external study that identified that better quality data was needed; the recognition that vacancy was an issue that affected property rates, the tax base and communities; and the enactment of new State legislation to form a land bank formed from numerous public entities. The VPIM was developed in 2016 by the GIS central unit, which is located within the City of Philadelphia's Office of Innovation and Technology, with the cooperation of multiple agencies including the Department of Licenses and Inspections, Office of Property Assessment, the Philadelphia City Planning Commission, Philadelphia Land Bank and Philadelphia Water Department.

Governance and resources

The VPIM is managed by the City's central GIS unit⁶⁷ and is part of a Vacant Property Strategy (VPS) (2011) led by the Managing Director's Office and Finance Director's Office, which explores how the City and privately owned vacant property is bought, sold and maintained. The VPS used the VPIM to identify 25,000 structures through records for the (owner obtained) vacant property license and code violations that indicate vacancy.⁶⁸

A Vacancy Working Group meets once a quarter. Representatives from relevant departments that contribute data to the VPIM discuss and convey how much confidence they have in their data and express their concerns in relation to vacancy. The Department of Planning and Development considers

⁶⁶ Contact details are available online at <https://bit.ly/2zDDJkC>.

⁶⁷ Partners include the Philadelphia Housing Development Corporation, the Philadelphia Land Bank, and the Philadelphia Redevelopment Authority.

⁶⁸ The VPS included provision for court dates dedicated to addressing vacant property cases as this process had been very slow in the past.

this group to be very important and it now includes the police and fire departments and the Pennsylvania Horticultural Society. New stakeholders and datasets continue to be added to the VPIM.

Datasets, including from the City, are released to the public through the open data portal OpenDataPhilly.⁶⁹ This portal provides access to more than 300 data sets, applications and APIs related to the Philadelphia region.⁷⁰ Many of the datasets utilized by the VPIM are available on OpenDataPhilly.

The VPIM covers the City and County of Philadelphia.

Process:

Definitions

Vacancy is not defined. The system seeks to assess the likelihood of a building or site not being in active use at a point in time.

Data gathering

Contributing datasets:

The VPIM aggregates multiple city administrative and geographic data sources in a central geo database and uses the Philadelphia Water Department's tax boundary dataset to define properties. Datasets are uploaded in python javascript, an automated script that renews as the datasets are updated. Contributors include:

- Office of Property Assessment (property taxes etc., tied to Revenue)
- Department of Licenses and Inspections (violations, permits, licenses,⁷¹ code enforcement etc.)
- City Planning Commission
- Philadelphia Water Department (run by the municipality)
- Philadelphia Gas Works (owned by the municipality)
- Electricity (private entity)
- Aerial imagery
- Crowd sourcing

⁶⁹ OpenDataPhilly is based on the idea that providing free and easy access to data encourages better and more transparent government and a more engaged and knowledgeable citizenry. OpenDataPhilly is funded by private donations and powered by the Comprehensive Knowledge Archive Network (CKAN), an open source data portal platform. Please see <https://www.opendataphilly.org>.

⁷⁰ OpenDataPhilly partners are the City of Philadelphia Office of Innovation and Technology, which oversees all major information and communications technology initiatives for the City of Philadelphia; Azavea, a Philadelphia-based GIS software firm that built OpenDataPhilly; Temple University School of Media and Communication; and Technically Philly, a news site covering the tech community. Funding is from the William Penn Foundation and the Knight Foundation. OpenDataPhilly launched in 2011 and again in 2015.

⁷¹ Each license has a unique License Number, an issue date and a month and year of expiration.

The data from Licenses and Inspections for violations is essentially reactive and crowd-sourced. For example, when an inspector visits a property following a call (perhaps from a neighbour) relating to accumulating rubbish or evident structural problems. Repeat visits can indicate a high probability that a property is neglected and/or vacant. Direct crowd-sourcing for vacant properties is facilitated on the Philly 311 website and mobile app.⁷²

In relation to data from utilities, data for electricity usage is more challenging to access as it is run by private entities in a deregulated market.

Aerial imagery can be helpful, for example to identify overgrown sites and gardens, or holes in the roofs of buildings.

Indicators of vacancy:

The VPIM identifies characteristics of vacancy across the multiple datasets, including specific property violations, permits, licenses, assessment information, planning information, city owned properties, and utility data. These characteristics are applied in the model as either positive or negative indicators. A positive indicator has a tendency to signify vacancy, such as a vacant property code (assigned during an assessment) or a code violation issued by the Department of Licenses and Inspections. A negative indicator has a tendency to signify occupancy, such as a rental license or an occupied property code. The indicators are weighted according to age of the observation or record⁷³ and other factors as determined by the relevant city department for a particular dataset.

Scores:

Individual indicators for potential vacancy are assigned a score. The highest possible score is 7. The closer a score is to 7, the more likely it is that the property is vacant (building or land).

Ranks:

The aggregated score for each tax parcel is converted to a composite ranking for each tax parcel.⁷⁴

⁷² The "About" window of the VPIM, viewed when the VPIM homepage opens, states "If you would like to report a vacant building in your neighborhood, please submit a request to Philly 311 using their website or mobile application." (OpenDataPhilly, 2018)

⁷³ For example, data from before 2014 is given a rating of 1pt in terms of certainty, and after 2014 a rate of 2pt.

⁷⁴ Ranks are determined by dividing the summary score of an individual property by the highest score in the data.

Ground-truthing:

The VPIM is therefore used as a flagging system. Properties with higher rankings may be subject to verification by ground-truthing. Depending on the indicators recorded the ground-truthing might be carried out by Department of Licenses & Inspections field inspectors, Philadelphia Redevelopment Authority (PRA) and Philadelphia Land Bank (PLB) staff, or Planning Commission staff. The ground-truthing is necessary as the data only indicates the likelihood of vacancy. Geo-imagery is also used.

Data outputs

The VPIM is accessed at <https://bit.ly/2jBkLoz> on PHLmaps, the City of Philadelphia's enterprise ArcGIS Online website. There are 3 output datasets:

- Vacant Property Indicators Land
- Vacant Property Indicators Buildings
- Combined vacancy percentage by block

The VPIM provides different categories of data on each tax parcel or property including: identifiers, address, owners, building description, Council district, building rank, and shape dimensions.

The OpenDataPhilly vacant property indicators and the Department's maps in the VPIM are updated on a monthly basis.

Challenges

- It can often be difficult to confirm if a property (building) is vacant. While the indicators from the different layers of data may collectively suggest a property is likely to be vacant, it may just prove to be a matter of timing or that the inhabitant(s) live frugally. Verification is therefore critical.
- It is not possible to enter properties to inspect for legal and health and safety reasons.
- Legal issues with providing open source data that includes data on owners and private property. To address this the VPIM provides a disclaimer relating to rights, responsibilities, ownership and accuracy.⁷⁵

⁷⁵ Disclaimer and access constraints: "The City of Philadelphia reserves all rights in the City's databases and any data contained therein, and the end user's use of the data does not constitute a transfer of, nor does the end user receive, any title or interest in the database or any other City data. The City of Philadelphia makes no representation about the accuracy of any specific information in this data and is provided "as is" and without Warranty of any kind. The user of this data will assume complete responsibility for any and all occurrences resulting from its use or display and will hold the City of Philadelphia harmless from any and all claims, demands, liabilities, obligations, damages, suits, judgments or settlements, including reasonable costs and attorneys' fees, that arise from use of this data."

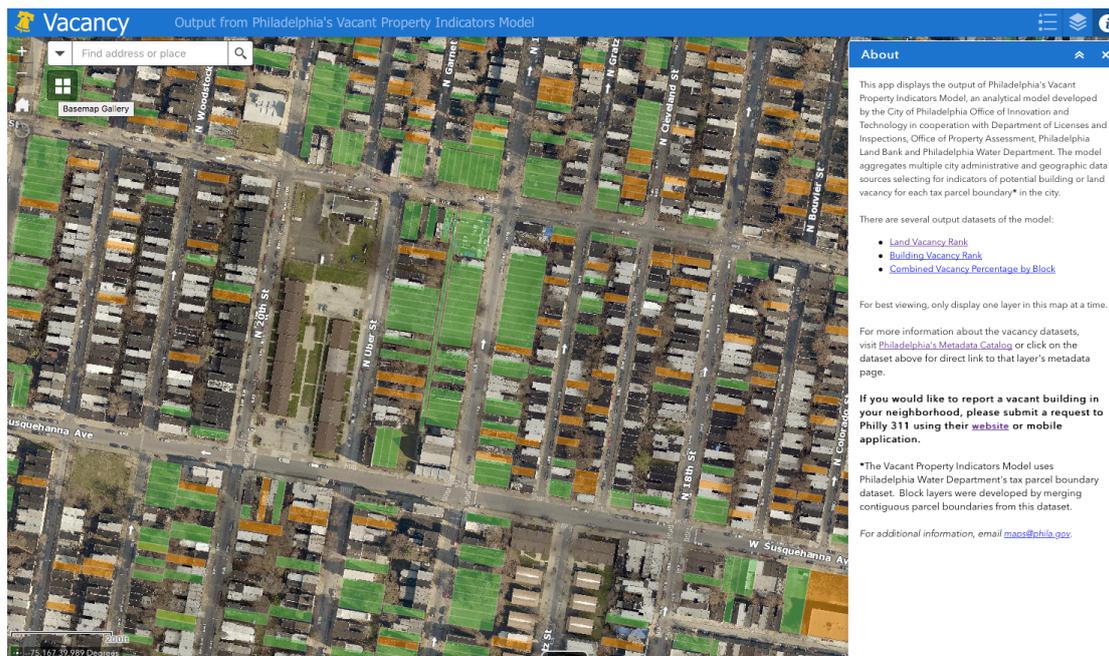


Figure 5. Screenshot of the VPIM map available here.

Outcomes:

The Department of Planning and Development uses the VPIM as a base layer in the Community Development Implementation Strategy (CDIS), an online mapping tool that layers datasets to guide and inform how and where community development takes place for optimal effect. The CDIS has 4 base layer maps: assets, opportunities, needs and investment (public and private). Additional datasets can be layered on top of the base layers, some of which are based on point data and others on census block group. By layering data the Department is able to analyse development trends, transportation use, vacancy, employment centres, public facilities, capital improvements, etc.. The tool allows an holistic approach and helps identify where to target investment to leverage private investment; enhance quality of life for local communities; and identify appropriate reuse or development activities.

A wide range of initiatives in the city are cited as using the VPIM as a baseline tool for management and informing decisions:

- Workforce Housing Program (WFH):⁷⁶
Vacant land is offered to developers at below market value by the Philadelphia Land Bank and Redevelopment Authority to build

⁷⁶ For more detail please see <https://bit.ly/2lmq8AP>.

affordable housing for income eligible households. There are various rules that must be followed.⁷⁷

- Sheriff Sales:⁷⁸

These are effectively compulsory sale orders where certain criteria have to be met to prove vacancy and that a compulsory sale is the best option. These sales can take at least a year and the Philadelphia Land Bank has first refusal if there is an evident strategic benefit in the purchase.
- Doors and Windows Ordinance:⁷⁹

This pilot programme from 2011-13 from the City of Philadelphia Department for Licenses and Inspections, Streets Department, and Philadelphia Redevelopment Authority, involved installing doors and windows and cleaning up vacant properties. The aim was to combat urban blight and gun violence and make units more marketable for renovation as housing. The programme has been shown to offer a low-cost method of reducing certain aspects of criminal activity in and around vacant properties (Kondo et al., 2015).
- Police and fire department work:

The VPIM helps service personnel to know what to expect when they are called out to a property or area.
- Philadelphia Land Bank:⁸⁰

The consolidation of publicly held land into one agency and then disposing of properties for reuse, all guided by a strategic plan. The VPIM identifies vacant land that can help build up land parcels.
- Land Care Program (Pennsylvania Horticultural Society):⁸¹

Maintenance services for vacant lots including inspections, installing green areas, fencing and maintenance. The programme works in collaboration with city-based landscape contractors and local communities, and provides job training for 'returning citizens' (ex-offenders) through the Reentry Initiative.
- Clean Lots Improvement Programme (CLIP):⁸²

A one-off clean-up for vacant lots.

⁷⁷ For example, the unit must continue to meet the definition 'affordable' for a period of 10-30 years. The period depends on when the house is resold after the initial purchase.

⁷⁸ For more detail please see <https://bit.ly/2xSFpoi>.

⁷⁹ For a study of the effects of the ordinance please see Kondo et al. (2015). For more detail please see <https://bit.ly/2N4Py6N>.

⁸⁰ Please see <http://www.philadelphialandbank.org>.

⁸¹ Please see <https://phsonline.org/programs/landcare-program>.

⁸² For more detail please see <https://www.phila.gov/clip/Pages/default.aspx>.

- Grounded in Philly:⁸³
Legal support from the Garden Justice Legal Initiative to community gardeners who are using land without a permit that would otherwise be unused.⁸⁴

Impacts

- The VPIM is recognised at Mayoral level as a critical tool in the operations of the City government:
“This dataset is an important tool as the Administration works to spur economic activity, improve public safety, increase access to affordable housing and ensure vibrant neighborhoods for all residents of Philadelphia.” (Mayor Jim Kenney, quoted on the City of Philadelphia Office of the Mayor (2016) website)
- The Department of Planning and Development recognizes that the VPIM is critical to ensuring a more efficient, proactive and strategic operation where it is possible to coordinate efforts and work across agencies. The VPIM has become a key tool in ensuring Philadelphia’s economic growth of recent years is equitable.
- The model enables the Department to target an area for a clean-up or regeneration.

⁸³ For more detail please see <http://www.groundedinphilly.org>.

⁸⁴ Grounded in Philly data comes from a number of city data sources, including but not limited to: Parcel outlines from the city’s Records Department; Land use designations which identify parcels and portions of parcels by land use, including vacancy, from the City Planning Commission; Permeability data by parcel from the Water Department; vacancy licenses and violations from Licenses & Inspections; the Redevelopment Authority’s Available Properties; and billing information. Where an API is available the Grounded in Philly database is updated continuously (when the source dataset is updated). There is an opportunity for users to correct data on the website, for example verifying that a property is not vacant.

Observations

This section briefly reflects on each of the three jurisdictions examined and then identifies some common characteristics that can be observed. Figure 6 overleaf provides a summary or overview of the 5 established inventories.⁸⁵ Suggestions of areas for further research are put forward.

Scotland

In Scotland, two robust, mature and open systems are in place for the identification of vacant spaces at the opposing scales of large sites and individual homes. However, these systems do not provide a complete understanding of how space is (not) used:

- an intermediate scale of vacant space (less than 1000sq.m and larger than an individual housing unit) is not documented other than in Stalled Spaces, which is limited in coverage and relies on crowd-sourcing;
- there is no composite map or co-ordination of the 3 scales (SVDLS, Stalled Spaces, SEHP) to provide a synoptic view.

It is clear the SVDLS and SEHP are excellent examples of how this type of data can be used to support a plethora of informed decision-making processes and initiatives that aim to address challenges, realise opportunities and bring about change.

Denmark

Statistics Denmark's system for understanding residential vacancy on a dynamic and continuous basis is comprehensive and ingenious. The motivation for understanding residential vacancy is to allow the Danish Government keep a check on the effectiveness of existing policies such as the residence requirement, reflecting the fact that vacancy levels are relatively very low in urbanised areas. By contrast, in Scotland and Philadelphia the motivations relate to identifying opportunities for bringing properties back into use or mitigating the negative impacts of vacancy.

However, there do appear to be significant gaps in the availability and accessibility of data in Denmark. For example:

- there are no comprehensive datasets for publicly owned properties;

⁸⁵ The Danish Local Government dataset on vacant public buildings is not included as the register is only at the early stages of development.

- data is only available in the form of statistics (from both Statistics Denmark and the Danish Property Foundation) and there is no composite and accessible map indicating individual building plots or tax parcels that are vacant, limiting the utility of the data for proactive planning processes.

Philadelphia

Philadelphia's Vacant Properties Indicator Model addresses all scales of property in one system, illustrated in one online overview map. The model seeks to identify the likelihood of vacancy across the city at all scales, building up an ever-changing evidence profile on each property over time. Through use of APIs with dynamic and citywide proxy datasets the model accommodates the challenges of fluidity and scale. It is an intelligent and relatively low resource use of technology that should be applicable to other contexts with geo-spatial datasets and property identifiers.

The VPIM has high-level buy-in within the city administration and is recognised as a critical tool for the Department of Planning and Development and the city as a whole, supporting a plethora of informed decision-making processes and initiatives that aim to address challenges, realise opportunities and bring about change.

Figure 6. Summary of findings:

Country/city	Scotland	Scotland	Denmark	Denmark	Philadelphia
Inventory	Scottish Vacant and Derelict Land Survey	Scottish Empty Homes Partnership	Statistics Denmark 'left empty dwellings'	Danish Property Federation	Vacant Property Indicators Model
Year instigated	1988	2010	1980s	2015	2016
Motivations	Strategic management of land-use	Bringing private sector homes back into use	Monitoring effectiveness of policies	Understanding the market	An efficient, proactive and strategic operation
Data measured	Vacant urban land and derelict land over 1000sq.m	Housing units empty over 6 months	Registered buildings including 'left empty dwellings' at any time	Residential and commercial investment properties, including economic and spatial vacancy	Likelihood of vacancy in land and buildings
Coordinators	Scottish Government Centre for Housing Market Analysis	Shelter Scotland	Statistics Denmark	Danish Property Federation	City of Philadelphia Dept. of Planning and Development
Updates	Annual	Continuous	Continuous	Quarterly	Continuous
Area covered	Entire country	Entire country	Entire country	Entire country, some gaps	Entire city and county area
Data gatherers	Local planning authorities	Citizens; Local authorities; Empty Homes Officers	Citizens; Local authorities	Members (property investment sector)	Citizens; City government; open data portal
Existing data sources	Previous year's data; planning records	Council Tax	Population register and property register	Members' property investments	Multiple proxy city administration and geographic datasets
Accessible outputs	Report; statistics; maps showing individual sites	Report; statistics	Statistics including floor areas in interactive tables and maps	Report; statistics for all building uses	Interactive map for land and buildings; data on each tax parcel
Users identified	National government Local government Developers Community groups	National government Local government Housing Associations	National government Local government	Danish Property Federation membership (detailed data)	City government Civic services

Common themes and characteristics

A number of common themes and characteristics can be observed in the different cases.

Citizen generated data:

Citizens are motivated to provide the base data for identifying vacancy in a number of cases:

- SEHP data relies on citizens making an effort to avoid paying unnecessary Council Tax;
- Statistics Denmark data relies on citizens seeking benefits of citizenship by keeping their CPR records up to date;
- VPIM relies on citizens interacting with City Government, Revenue, utilities and services in their daily lives.

Using existing datasets:

Data indicating a strong likelihood of vacancy is often a by-product from an established core government dataset. For example:

- SEHP data is derived from Council Tax records;
- Statistics Denmark data results from the cross-referencing of the CPR and BBR.

By contrast, the VPIM uses multiple datasets with a variety of indicators (of vacancy) to build up a picture of the likelihood of vacancy, including from Licenses and Inspections, Revenue and utilities. The only dataset that sets out explicitly to solely identify vacancy (and dereliction) is the SVDLS.

Local knowledge is key:

Technology is not a panacea for creating datasets on vacancy. Most of the cases examined are flagging systems that provide a first step towards verification that a space is vacant. Each case relies to some extent on ground-truthing and crowd-sourcing:

- SVDLS: Council staff walk or drive around to check sites and update the datasets. They also rely on colleagues and the wider community to inform them of changes;
- SEHP: Empty Homes Officers ground-truth and refine the datasets, relying on communities for local information;
- Statistics Denmark: Kommune staff rely on the communities in rural areas to identify individual properties and prioritise actions;
- VPIM: Staff from different departments and agencies ground-truth the dataset and the model invites contributions and verification from the community online.

Key roles for local government:

With the exception of the DPF dataset each case relies on, or is situated within, local government (albeit with national government oversight).

- Scotland: all Planning Authorities contribute to the SVDLS and 20 of the 32 Local Authorities have SEHP EHOs.
- Denmark: all Kommunes have devolved responsibilities to manage the CPR and BBR.
- Philadelphia: the City of Philadelphia created and operates the VPIM supported by opendataphilly.

Further research

The multiple–case study suggests many further areas for research including:

- how different Danish Kommunes are inventorizing their own vacant publicly-owned building stock;
- incentives for the reuse of identified vacant buildings for housing and sustainable communities;
- the extent to which the datasets are used to understand, or could help reveal, the systemic causes of vacancy;
- the underlying reasons for low levels of urban residential vacancy in Denmark in terms of systems of property ownership and taxation;
- how a comprehensive and synoptic view of vacancy across a town or city could usefully aide pro-active planning and development practice;^{86 87}
- how good design and conservation policies have helped to mitigate against vacancy, for example in the case of the nineteenth century tenement block with retail ground floor in Scotland.

It might also be useful to consider how the multiple-case study relates specifically to the context of Ireland; are there any transferable and useful characteristics?

⁸⁶ For example, a report funded by the Central Scotland Green Network Development Fund in 2011, collated the vacant and derelict sites data for Edinburgh into a series of maps of the whole city in a pilot study exploring proposals for interim uses on a selection of sites, with the aim of optimizing environmental and social benefits (Open Optimised Environments, 2011).

⁸⁷ For example, Desimini (2013) examines the potential of aligning hydrological planning with vacant land management for urban re-structuring in Philadelphia, Cleveland and Detroit. Vacant sites mapping is shown to provide a spatial pattern or template within which to address challenges in urban systems.

For example:

- Could vacancy be an appropriate metric or indicator for measuring progress in relation to policies (Project 2040, Rebuilding Ireland etc.) as it is in Scotland and Denmark;
- What datasets in Ireland could be used that might indicate likelihood of vacancy in a similar way to the Council Tax in Scotland, the CPR and BBR in Denmark, and the multiple proxy datasets in the VPIM;
- How could existing efforts to monitor vacancy be brought together into one comprehensive nationwide system covering all scales, as in the VPIM;
- What opportunities exist for collaboration and partnership as demonstrated by the Scottish Government and a homelessness charity in the SEHP and multiple civic stakeholders in Philadelphia;
- What opportunities for pro-active planning initiatives might be made possible with a comprehensive and dynamic dataset for vacancy, as demonstrated in Philadelphia.

Appendix A:

Members of the Collaborative Working Group for Housing and Sustainable Living (March 2019):

Heritage Council of Ireland	Alison Harvey
Housing Agency of Ireland	Isoilde Dillon
	Daragh McCarthy
Mayo County Council	Tom Gilligan
Space Engagers	Philip Crowe
University College Dublin	Orla Murphy*
Environmental Protection Agency	Tadhg O'Mahony*

*from January 2019.

References:

City of Philadelphia Office of the Mayor. 2016. City Releases Open Data on Vacant Property Indicators. Online at <https://bit.ly/2EsPYVL> [accessed 17.10.2018].

Committee on Rural Areas and Islands. 2012. De tomme boliger (The empty homes). edited by Committee on Rural Areas and Islands 2011-12 ULØ alm. Online at <https://bit.ly/2AdTNdh> [accessed on 21.09.2018].

Community Analytical Services. 2014. Uses of the data: Scottish Vacant and Derelict Land Statistics. Online at <https://www.gov.scot/Topics/Statistics/Browse/Planning/DataUses> [accessed on 21.09.2018].

Culture and Citizenship. 2017. Kulturpolitik 2017-2020 Aarhus Kommune. edited by Culture and Citizenship. Online at <https://aarhus.dk/media/6711/kulturpolitik-2017-2020-illustreret.pdf> [accessed 20.09.2018].

Danish Property Federation. 2018. Danish Property Federation Market Statistics – Vacancy, July 2018. Online at http://issuu.com/hverve/docs/edmt318_english?e=2332567/64347781 [accessed 18.09.2018].

Desimini, J. 2013. "Blue voids: stormwater strategies for abandoned lands." *Journal of Landscape Architecture* 8 (2):64-73. doi: 10.1080/18626033.2013.864131.

Garden Justice Legal Initiative. 2018. "Grounded in Philly." Online at <http://www.groundedinphilly.org> [accessed 20.09.2018].

Glasgow City Council. 2016. Glasgow's Housing Strategy Factsheet 7/2016. Online at <https://bit.ly/2R9jHW2> [accessed on 27.09.2018].

Government of Ireland. 2018. Vacant Housing Reuse Strategy 2018. Online at <https://bit.ly/2OnYohN> [accessed 17.10.2018].

Indecon. 2018. Report on the Taxation of Vacancy Residential Property. Online at <https://www.finance.gov.ie/wp-content/uploads/2018/09/Vacant-Property-Tax-Indecon-Report-14-September-2018-FINAL.pdf> [accessed 19.09.2018].

Jensen, J. O. 2017. "Vacant houses in Denmark: Problems, localization and initiatives." ENHR Conference 2017 Tirana, Tirana, Albania.

Kondo, M.C., C. Branas, D Keene, B. C. Hohl, and J. M. MacDonald. 2015. "Erratum: A difference-in-differences study of the effects of a new abandoned building remediation strategy on safety " *PLoS ONE* 10 (8). doi: 10.1371/journal.pone.0136595.

Ministry of Transport, Building and Housing. 2017. NOTAT: Analyse af bopaelspligt (Analysis of residence duty). edited by Building and Housing Ministry of Transport. Online at <https://bit.ly/2NLL99p> [accessed 18.09.2018].

National Records of Scotland. 2018. Scotland's Population 2017 – The Registrar General's Annual Review of Demographic Trends. Online at <https://www.nrscotland.gov.uk/statistics-and-data/statistics/stats-at-a-glance/registrar-generals-annual-review> [accessed on 20.09.18].

Office for National Statistics. 2012. Country Profiles: Key Statistics – Scotland August 2012. Online at http://webarchive.nationalarchives.gov.uk/20160108201700/http://www.ons.gov.uk/ons/dcp171780_275330.pdf [accessed 20.09.2018]

Open Optimised Environments Ltd.. 2011. Temporary Greening of Vacant and Derelict Land in Edinburgh. online: The Edinburgh and Lothians Greenspace Trust. Online at <http://bit.ly/1mHGmax> [accessed 17.10.2018].

OpenDataPhilly. 2018. "Submit a Request." Online at <https://www.phila.gov/311/form/Pages/default.aspx> [accessed 20.09.2018].

School of Business and Social Sciences Aarhus University, Department of Economics and Business Economics, The National Centre for Register Based Research. 2018a. "The Central Register of Buildings and Dwellings [BBR]." accessed 27.09.2018. <http://econ.au.dk/the-national-centre-for-register-based-research/danish-registers/the-central-register-of-buildings-and-dwellings-bbr/> [accessed 20.09.2018].

School of Business and Social Sciences Aarhus University, Department of Economics and Business Economics, The National Centre for Register Based Research. 2018b. "The Danish Civil Registration System [CPR]." accessed 27.09.2018. <http://econ.au.dk/the-national-centre-for-register-based-research/danish-registers/the-danish-civil-registration-system-cpr/> [accessed 20.09.2018].

Scottish Empty Homes Partnership. 2017. Annual Report 2016-17. Online at https://scotland.shelter.org.uk/__data/assets/pdf_file/0019/1402516/Scottish_Empty_Homes_Partnership_Annual_Report_201617.pdf [accessed on 22.09.18].

Scottish Empty Homes Partnership. 2018. Annual Report 2017-18. Online at https://scotland.shelter.org.uk/__data/assets/pdf_file/0006/1539483/Shelter_EmptyHomes_AnnualReport_2018.pdf [accessed on 20.09.18].

Scottish Government. 2016. Stock by tenure. Online at <https://bit.ly/2xqi39Z>. [accessed on 20.09.2018].

Scottish Government. 2018. People, Communities and Places: Scottish Vacant and Derelict Land Survey 2017. Online at <https://www.gov.scot/Publications/2018/06/8465/downloads> [accessed 21.09.2018]. For a full list of publications for the SVDLS 2017 please see "Planning - Publications." Online at <https://www.gov.scot/Topics/Statistics/Browse/Planning/Publications> [accessed 11.10.2018].

Shelter Scotland. 2017. "Glasgow Empty Homes Project Saves £1 million." Online at <https://bit.ly/2zsj1VY> [accessed 22.09.2018].

SKAT (N.D.). 2018. "Generelt om ejendomsvurdering, ejendomsværdiskat og ejendomsskat." Online at <http://bit.ly/2xcSM1t> [accessed 18.09.2018].

Statistics Denmark. 2018. Denmark in Figures 2018. Online at <https://www.dst.dk/Site/Dst/Udgivelser/GetPubFile.aspx?id=28923&sid=denmark2018> [accessed 18.09.2018].

STATISTICS.GOV.SCOT. 2018. "Local Authority Vacant Dwellings: a data cube spreadsheet." Online at <https://bit.ly/2PQJPmV> [accessed 11.10.2018].

United States Census Bureau. 2018. "Quick Facts, Philadelphia County, Pennsylvania." Online at <https://bit.ly/2zyV65Z> [accessed 20.09.2018].

World Population Review. 2018. "Philadelphia, Pennsylvania Population 2018." Online at <http://worldpopulationreview.com/us-cities/philadelphia-population/> [accessed 20.09.2018].

ISBN: 978-1-903848-59-3